

What is claimed is:

SUB A17 1. A computer system comprising:

2 a first computer network;

3 a first computer subsystem comprising collaborative application software, with the

4 collaborative application software comprising machine readable instructions for sending application

5 output data over the computer network;

6 a second computer subsystem structured to receive the application output data; and

7 a second-subsystem firewall, located in front of the second application subsystem, the

8 second-subsystem firewall structured to communicate the application output data to the second

9 computer subsystem through a hypertext transfer protocol keep-alive connection that is kept open for

10 the duration of a collaboration.

11 2. The computer system of claim 1 wherein the computer system further comprises
12 communication software comprising machine readable instructions for opening a first-subsystem

13 thread in the second computer subsystem for receiving the application output data.

1 3. The computer system of claim 2 wherein:

2 the second computer subsystem comprises a second-subsystem socket structured to receive
3 the application output data; and

4 the communication software further comprises machine readable instructions for causing the
5 second-subsystem socket to block on a read.

1 4. The system of claim 3 wherein the communication software further comprises
2 instructions causing the first-subsystem thread to sleep.

1 5. The system of claim 1 wherein the collaborative application software sends the
2 application output data as a stateful communication.

1 6. The system of claim 5, wherein the application output data is structured and arranged
2 according to an HTTP 1.1 protocol.

1 7. The system of claim 6 wherein:
2 the second-subsystem firewall comprises a port 80; and
3 the application output data is communicated across the second-subsystem firewall through a
4 connection originated through port 80.

1 8. The system of claim 1 wherein the first computer subsystem comprises:
2 a server computer;
3 a Web server computer; and
4 a second computer network structured to allow data communication between the server
5 computer and the Web server computer.

1 9. The system of claim 8 wherein:

2 the server computer comprises at least a portion of the collaborative applications software;

3 and

4 the Web server computer is structured to receive the application output data from the server

5 computer over the second computer network and to send the application output data to the second

6 computer subsystem over the first computer network.

10. The system of claim 9 wherein:

the Web server computer comprises a Web server socket structured to receive the application

output data from the server computer over the second computer network; and

the communication software further comprises machine readable instructions for causing the

Web server socket to block on a read.

11. The system of claim 1, further comprising:

a third computer subsystem structured to receive the application output data; and

a third-subsystem firewall, located in front of the third computer subsystem the third-

subsystem firewall structured to communicate the application output data to the third computer

subsystem through a hypertext transfer protocol keep-alive connection.

12. The computer system of claim 11 wherein:

2 the third computer subsystem comprises a third-subsystem socket structured to receive the
3 application output data; and
4 the communication software further comprises machine readable instructions for causing the
5 third-subsystem socket to block on a read.

1 13. The system of claim 11 wherein communication between the first computer
2 subsystem, the second computer subsystem and the third computer subsystem is in real-time.

1 14. The system of claim 11 wherein the collaborative application software comprises at
2 least one of the following functions: a word processor, a task scheduling tool, a graphics program, a
3 presentation program, a spreadsheet, a game, a music studio.

1 15. A method of communicating over a computer network, the method comprising the
2 steps of:

3 generating, by a collaborative application software residing on a server computer, an
4 application output communication;

5 sending, over a first computer network, the application output communication to a client
6 firewall;

7 communicating the application output communication across the client firewall through a
8 hypertext transfer protocol keep-alive connection;

9 receiving the application output data at a client computer; and

10 keeping the hypertext transfer protocol keep-alive connection for the duration of a
11 collaboration.

1 16. The method of claim 15 wherein the client computer blocks on a read when waiting
2 for and receiving the application output data.

1 17. The method of claim 15, further comprising the step of originating a connection
2 across the client firewall through a port 80 of client firewall.

1 18. The method of claim 15 wherein the application output data is sent, at the sending
2 step, as a plurality of data packets structured and arranged according to HTTP 1.1.